



City of San Marcos

630 East Hopkins
San Marcos, TX 78666

Special Meeting City Council

Friday, June 14, 2019

11:30 AM

City Council Chambers

630 E. Hopkins - Lunch and Learn & Executive Session

I. Call To Order

II. Roll Call

EXECUTIVE SESSION

1. Executive Session in accordance with Section § 551.071 of the Government Code - Consultation with Attorney: to receive a staff briefing and deliberate regarding Martindale ETJ matters.
2. Consider action, by motion, to provide direction to Staff regarding the following Executive Session in accordance with Section § 551.071 - Consultation with Attorney: to receive a staff briefing and deliberate regarding Martindale ETJ matters.

PRESENTATIONS

3. Receive a Staff Presentation and hold a discussion regarding Long term flood mitigation, Atlas 14, and receive a Storm Water Utility Update; and provide direction to Staff.

III. Adjournment.

POSTED ON TUESDAY, JUNE 11, 2019 @ 11:30AM

JAMIE LEE CASE, CITY CLERK

Notice of Assistance at the Public Meetings

The City of San Marcos does not discriminate on the basis of disability in the admission or access to its services, programs, or activities. Individuals who require auxiliary aids and services for this meeting should contact the City of San Marcos ADA Coordinator at 512-393-8000 (voice) or call Texas Relay Service (TRS) by dialing 7-1-1. Requests can also be faxed to 855-461-6674 or sent by e-mail to ADArequest@sanmarcostx.gov



City of San Marcos

630 East Hopkins
San Marcos, TX 78666

Legislation Text

File #: ID#19-319, **Version:** 1

AGENDA CAPTION:

Executive Session in accordance with Section § 551.071 of the Government Code - Consultation with Attorney: to receive a staff briefing and deliberate regarding Martindale ETJ matters.

Meeting date: 6/14/2019

Department: City Clerk's Office on behalf of the City Council

Amount & Source of Funding

Funds Required: Click or tap here to enter text.

Account Number: Click or tap here to enter text.

Funds Available: Click or tap here to enter text.

Account Name: Click or tap here to enter text.

Fiscal Note:

Prior Council Action: Click or tap here to enter text.

City Council Goal: [Please select goal from dropdown menu below]

Choose an item.

Choose an item.

Choose an item.

Comprehensive Plan Element (s): [Please select the Plan element(s) and Goal # from dropdown menu below]

☐ Economic Development - Choose an item.

☐ Environment & Resource Protection - Choose an item.

☐ Land Use - Choose an item.

☐ Neighborhoods & Housing - Choose an item.

☐ Parks, Public Spaces & Facilities - Choose an item.

☐ Transportation - Choose an item.

☐ Not Applicable

Master Plan: [Please select the corresponding Master Plan from the dropdown menu below (if applicable)]

Choose an item.

Background Information:

Click or tap here to enter text.

Council Committee, Board/Commission Action:

Click or tap here to enter text.

Alternatives:

Click or tap here to enter text.

Recommendation:

Click or tap here to enter text.



Legislation Text

File #: ID#19-321, **Version:** 1

AGENDA CAPTION:

Consider action, by motion, to provide direction to Staff regarding the following Executive Session in accordance with Section § 551.071 - Consultation with Attorney: to receive a staff briefing and deliberate regarding Martindale ETJ matters.

Meeting date: 6/18/2019

Department: City Clerk's Office on behalf of the City Council

Amount & Source of Funding

Funds Required: Click or tap here to enter text.

Account Number: Click or tap here to enter text.

Funds Available: Click or tap here to enter text.

Account Name: Click or tap here to enter text.

Fiscal Note:

Prior Council Action: Click or tap here to enter text.

City Council Goal: [Please select goal from dropdown menu below]

Choose an item.

Choose an item.

Choose an item.

Comprehensive Plan Element (s): [Please select the Plan element(s) and Goal # from dropdown menu below]

☐ Economic Development - Choose an item.

☐ Environment & Resource Protection - Choose an item.

☐ Land Use - Choose an item.

☐ Neighborhoods & Housing - Choose an item.

☐ Parks, Public Spaces & Facilities - Choose an item.

☐ Transportation - Choose an item.

☐ Not Applicable

Master Plan: *[Please select the corresponding Master Plan from the dropdown menu below (if applicable)]*

Choose an item.

Background Information:

Click or tap here to enter text.

Council Committee, Board/Commission Action:

Click or tap here to enter text.

Alternatives:

Click or tap here to enter text.

Recommendation:

Click or tap here to enter text.



Legislation Text

File #: ID#19-320, **Version:** 1

AGENDA CAPTION:

Receive a Staff Presentation and hold a discussion regarding Long term flood mitigation, Atlas 14, and receive a Storm Water Utility Update; and provide direction to Staff.

Meeting date: June 14, 2019

Department: Engineering/CIP

Amount & Source of Funding

Funds Required: N/A

Account Number: Click or tap here to enter text.

Funds Available: Click or tap here to enter text.

Account Name: Click or tap here to enter text.

Fiscal Note:

Prior Council Action: Click or tap here to enter text.

City Council Strategic Initiative: [Please select from the dropdown menu below]

N/A

Choose an item.

Choose an item.

Comprehensive Plan Element (s): [Please select the Plan element(s) and Goal # from dropdown menu below]

☐ Economic Development - Choose an item.

☒ Environment & Resource Protection - Population Prepared for and resilient to Man-Made & Natural Disasters

☐ Land Use - Choose an item.

☐ Neighborhoods & Housing - Choose an item.

☐ Parks, Public Spaces & Facilities - Choose an item.

☐ Transportation - Choose an item.

☐ Not Applicable

Master Plan: *[Please select the corresponding Master Plan from the dropdown menu below (if applicable)]*

Stormwater Master Plan

Background Information:

Staff will provide presentations on Atlas 14 and how it impacts San Marcos, and the Stormwater Utility Update. A brief update on the Council direction for a long term Blanco River flood mitigation will also be provided.

Blanco River Flood Mitigation Status:

The CDBG-DR funding for infrastructure projects can only address impacts from local level events. Flooding from the Blanco River requires a regional solution. The City has participated with the Guadalupe River Authority and the US Army Corps of Engineers on evaluation of a flood mitigation project. Two of the options evaluated by the Corps are attached. Alternative 6 is being completed as one of the DR projects (Blanco Riverine). Alternative 6, combined with the City project, provides protection in the event of a 1% flood event but did not meet the Corps benefit/cost ratio requirements. The City has requested GBRA and the Corps to re-evaluate the project in consideration of the new Atlas 14 information.

The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) has a Watershed Protection and Flood Prevention Program. As part of the City Council visit to Washington D.C. a meeting with NRCS staff was held to determine applicability for Blanco River solution with the construction of flood control dams as was completed on Sink and Purgatory Creeks. Attached is a summary of the briefing information provided to NRCS staff and the meeting notes. Staff has contacted the state NRCS office and is working on an application for the development of a Watershed Plan for the Blanco River. Meetings have also been held with GBRA, Hays County and the Upper San Marcos Watershed Executive Director, Bill Taylor, to discuss support for the application.

Council Committee, Board/Commission Action:

Click or tap here to enter text.

Alternatives:

Click or tap here to enter text.

Recommendation:

Click or tap here to enter text.

Atlas 14 & the City of San Marcos City Council Workshop

June 14, 2019

Rainfall, how do we use it?

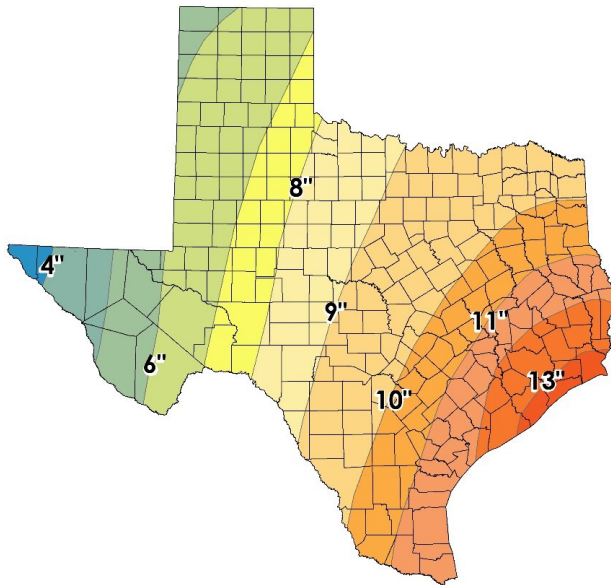
- **Design Infrastructure**
 - Storm drains / inlets
 - Open channels
 - Detention systems
 - Bridges / culverts
- **Basis for**
 - Floodplain Regulations
 - Design Criteria
 - Hydrologic & Hydraulic Analysis

WHAT IS ATLAS 14? | RAINFALL DATA HISTORY

1961 TP-40

Weather Bureau Technical
Paper 40

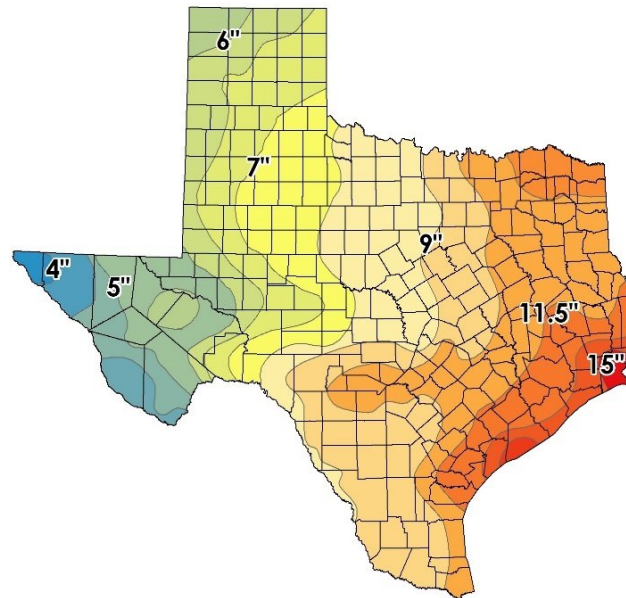
— Rainfall up to 1958



1998 USGS

■ Depth-Duration Frequency
of Precipitation for Texas

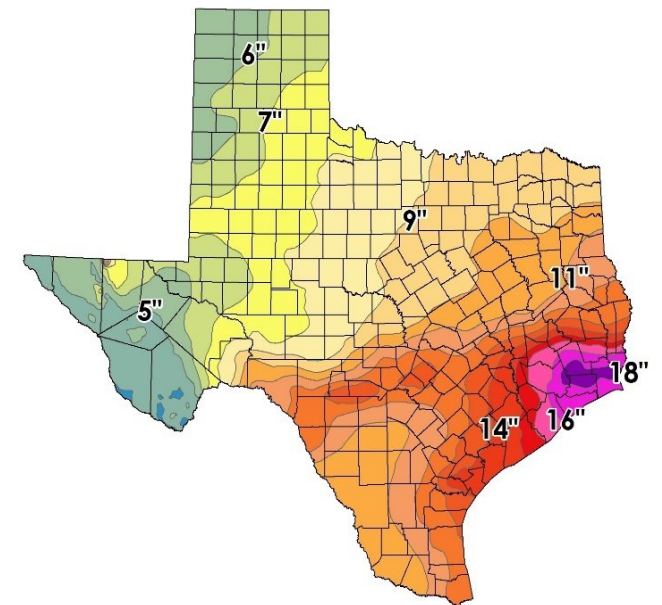
— Rainfall up to 1994



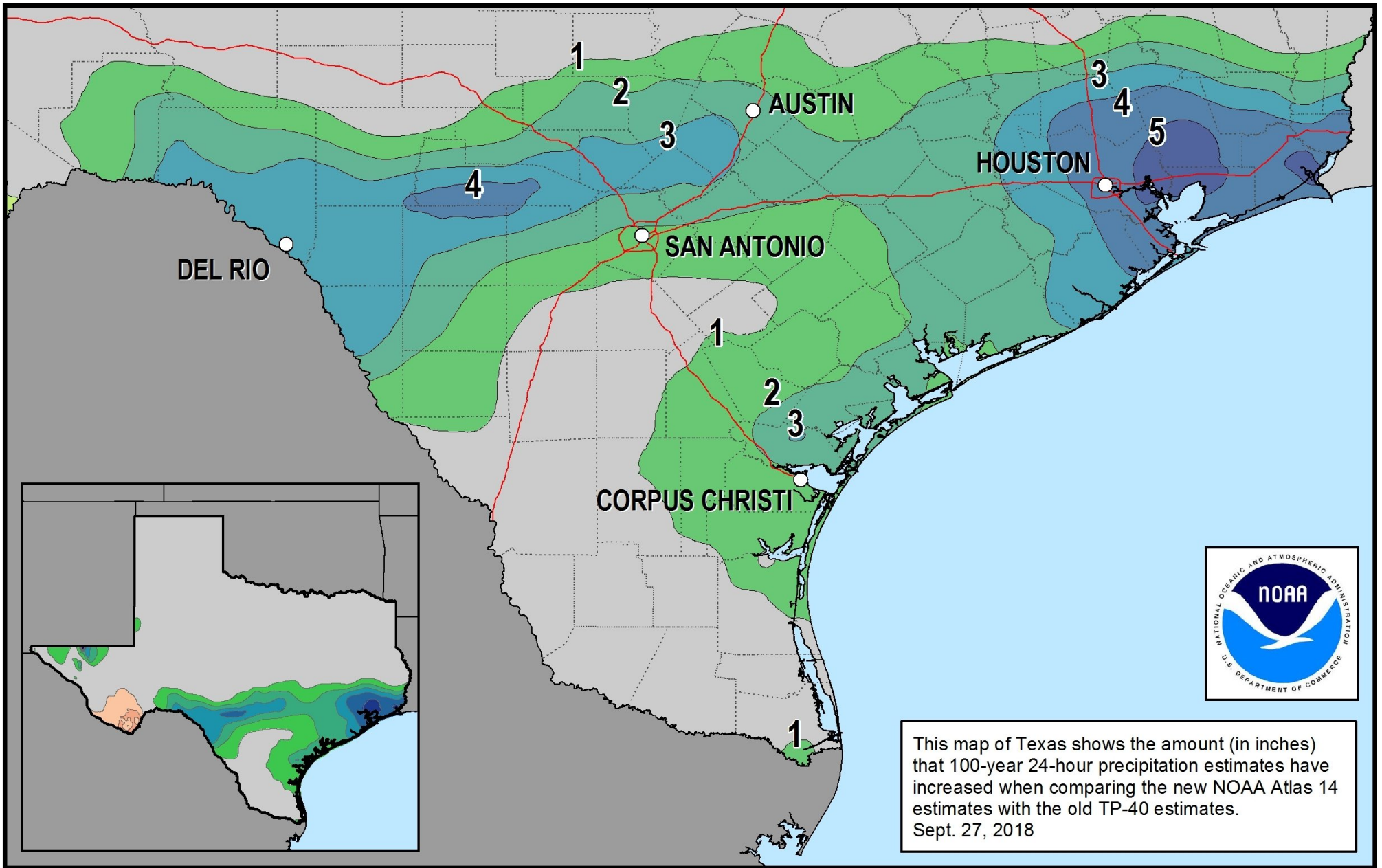
2018 ATLAS 14

■ NOAA Atlas 14, Volume 11
Precipitation Frequency Atlas
of the United States, Texas

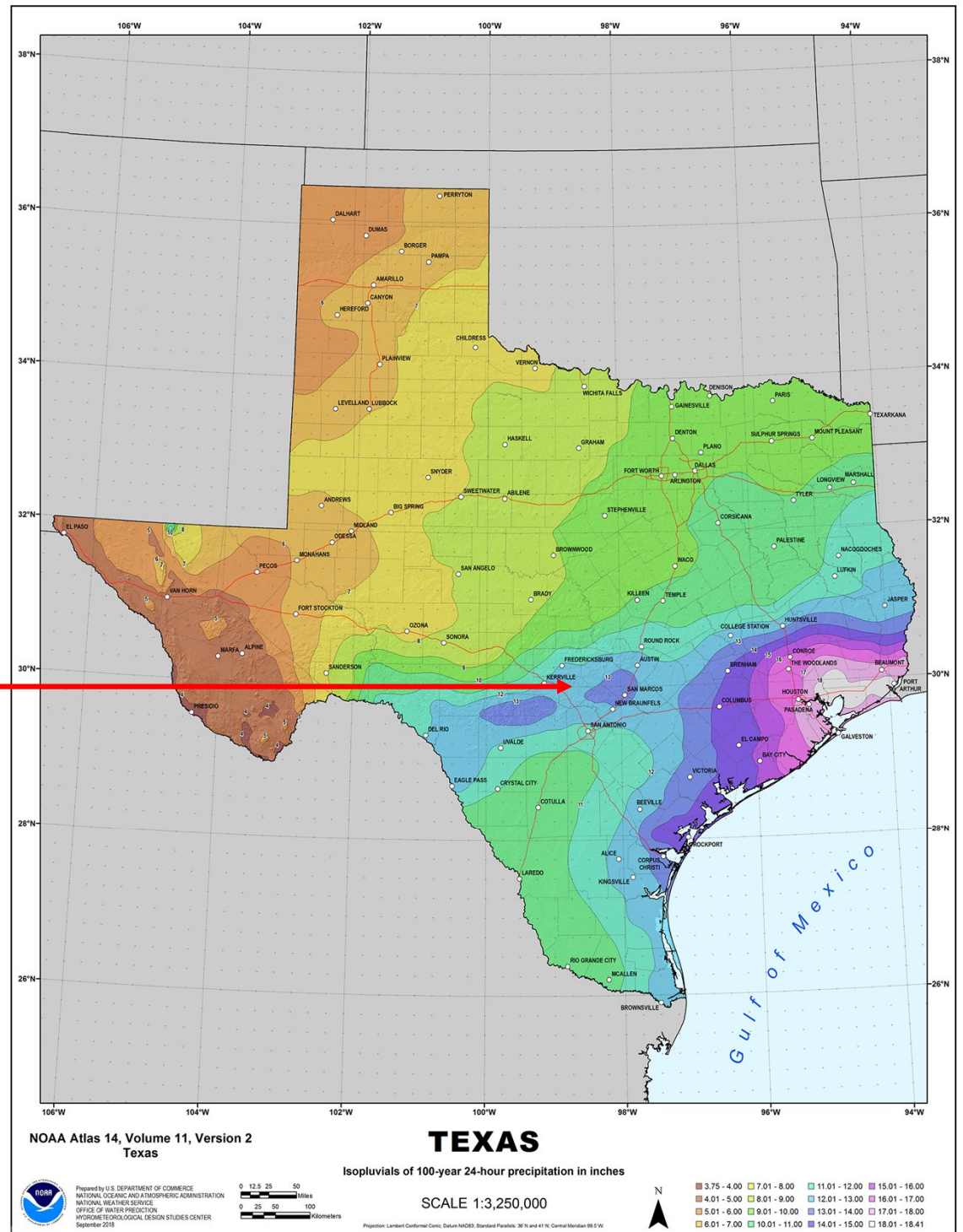
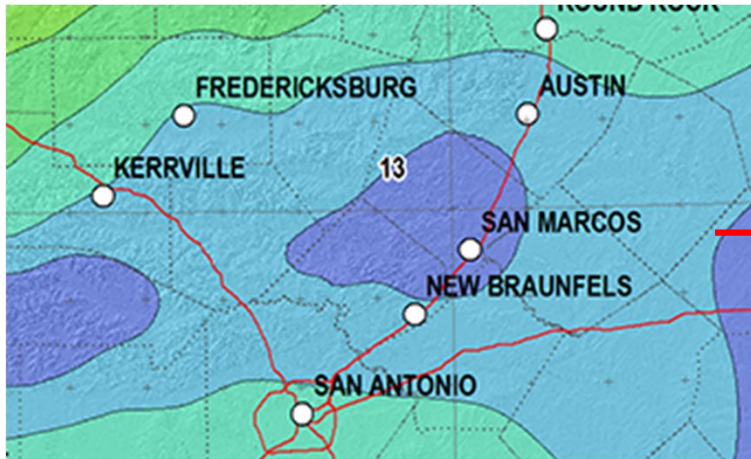
— Rainfall up to 2017



24-hour, 100-year
Precipitation



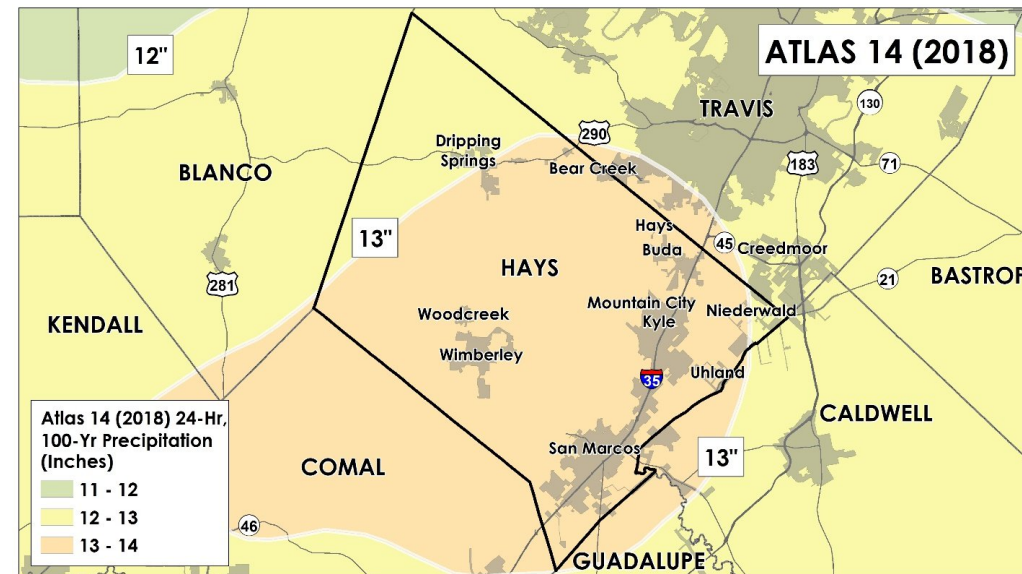
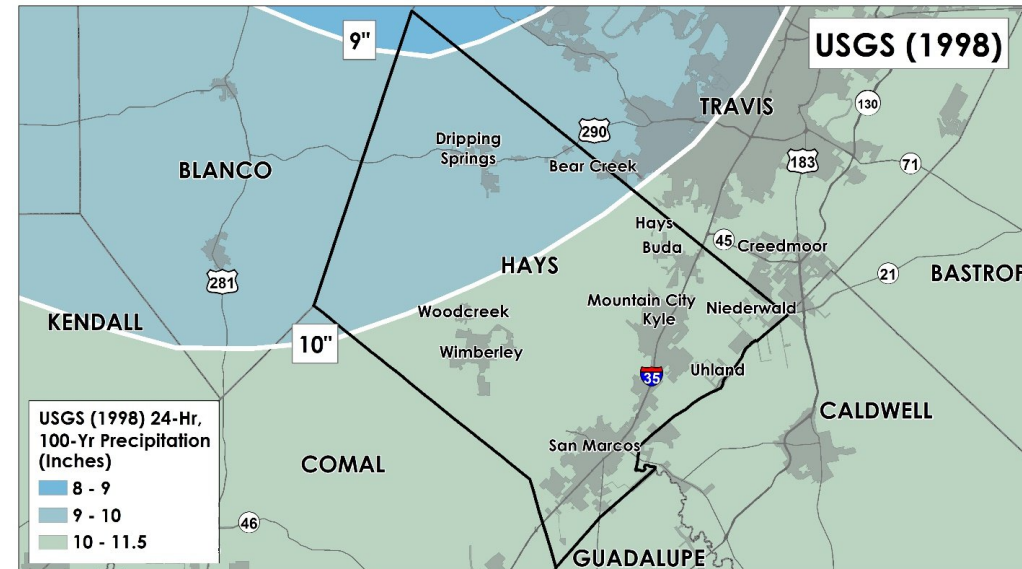
100 Year - 24 Hour Rainfall (inches)



WHAT IS ATLAS 14? | CHANGES

HAYS COUNTY

| Frequency Event | Annual Chance Probability | Countywide Average 24-hour Precipitation Depths (inches) | |
|-----------------|---------------------------|--|-----------------|
| | | USGS (1998) | ATLAS 14 (2018) |
| 500-year | 0.2% | 13.8 | 19.9 |
| 100-year | 1% | 10.5 | 13.3 |
| 50-year | 2% | 9.2 | 11.0 |
| 25-year | 4% | 7.9 | 9.1 |
| 10-year | 10% | 6.4 | 7.0 |
| 5-year | 20% | 5.3 | 5.6 |
| 2-year | 50% | 3.8 | 4.2 |
| 1-year | 100% | 1.4 | 3.1 |



WHAT IS ATLAS 14? | FREQUENCY NOMENCLATURE

CHANGING HOW WE COMMUNICATE FLOOD RISK

| Flood Events | Probability of Occurrence in ANY given year | Percent Chance of Occurrence in ANY given year | Percent Chance of Occurrence over a 30-year Mortgage |
|--------------|---|--|--|
| 500-year | 1 in 500 | 0.2% | 6% |
| 100-year | 1 in 100 | 1% | 26% |
| 50-year | 1 in 50 | 2% | 45% |
| 10-year | 1 in 10 | 10% | 96% |

What does this mean?

- **More rainfall requires larger infrastructure**
 - Private development
 - Public / Capital Improvement Projects
 - More cost
- **Floodplain maps**
 - Floodplains will expand
 - More homes and businesses are at risk than previously thought
- **Regulations / Criteria**
 - Will require updates

What are Others Doing?

- **Central Texas Atlas 14 Group**
- **Participating Agencies**
 - Cities (Austin, San Marcos, San Antonio, Georgetown, etc.)
 - Counties (Hays, Travis, Williamson)
 - Texas Department of Transportation (TxDOT)
- **Meeting monthly – sharing efforts**

What are Others Doing?

- **Texas Department of Transportation**

- Adopted as ***best available data*** in November 2018
- TxDOT Hydraulic Design Manual to be updated 2019
- Projects in Planning and Schematic Phases will incorporate
- Projects in Final design will use case by case

- **City of Austin**

- Issued Guidance Document for design criteria changes
- Recommended Floodplain Code Changes (Until maps changed)
- Updating maps – 2 to 3 years plus time for FEMA process
- Outreach on changes

- **Hays & Travis Counties**

- Evaluating options

Outside of Central Texas?

- **City of Houston / Harris County Flood Control District**
 - Revised regulations
 - New and substantial improvements within the 500-year floodplain to be built to 2-feet above the adjacent FEMA **500-year** floodplain
 - In the process in revising floodplain maps
- **Other Texas communities evaluating revising regulations**

San Marcos Considerations

- **FEMA Floodplain maps**
 - New version to be released in Summer 2020
 - New maps will not reflect Atlas 14 rainfall
 - To update, will require revised H&H models, mapping and FEMA approval process
 - Coordination with FEMA and USACE
- **Changes to City ordinances and design criteria**
- **Changes to CIP projects**

San Marcos Evaluation

- **Hydrologic Testing**
 - Precipitation values (new rain amounts)
 - Distribution (how it rains over time)
 - Loss methodologies (how it runs off)
- **Preliminary Results show flow increases**
 - Riverine Areas
 - Atlas 14 1% (100-year) = Current 0.4% (250-year)
 - Atlas 14 4% (25-year) = Current 2% (50-year)
 - Higher Impacts in non-riverine areas than riverine areas

Evaluation Recommendations

- **Update Design Criteria to reflect Atlas 14**
 - In-process development projects vested under old values
 - Evaluate changes to in-process CIP projects on a case by case basis.
 - Use updated criteria on future projects
- **Further evaluation needed to determine changes to regulation of FEMA floodplains**
 - Existing enhanced regulations provide some safety margin in lieu of revised maps.
 - Need to determine how to revise to reduce future risk.

Implementation

- **Update Design Criteria – August 2019**
 - Notification to development community
 - Revised criteria posted on website
 - Incorporate any LDC changes in update process
- **Further evaluation needed to determine changes to regulation of FEMA floodplains**
 - Existing enhanced regulations provide some safety margin in lieu of revised maps.
 - Evaluating how to revise to reduce future risk.
 - Recommendation for ordinance revisions in the Fall

Questions



Storm Water Rate Study Update

June 14, 2019

Storm Water Fee History

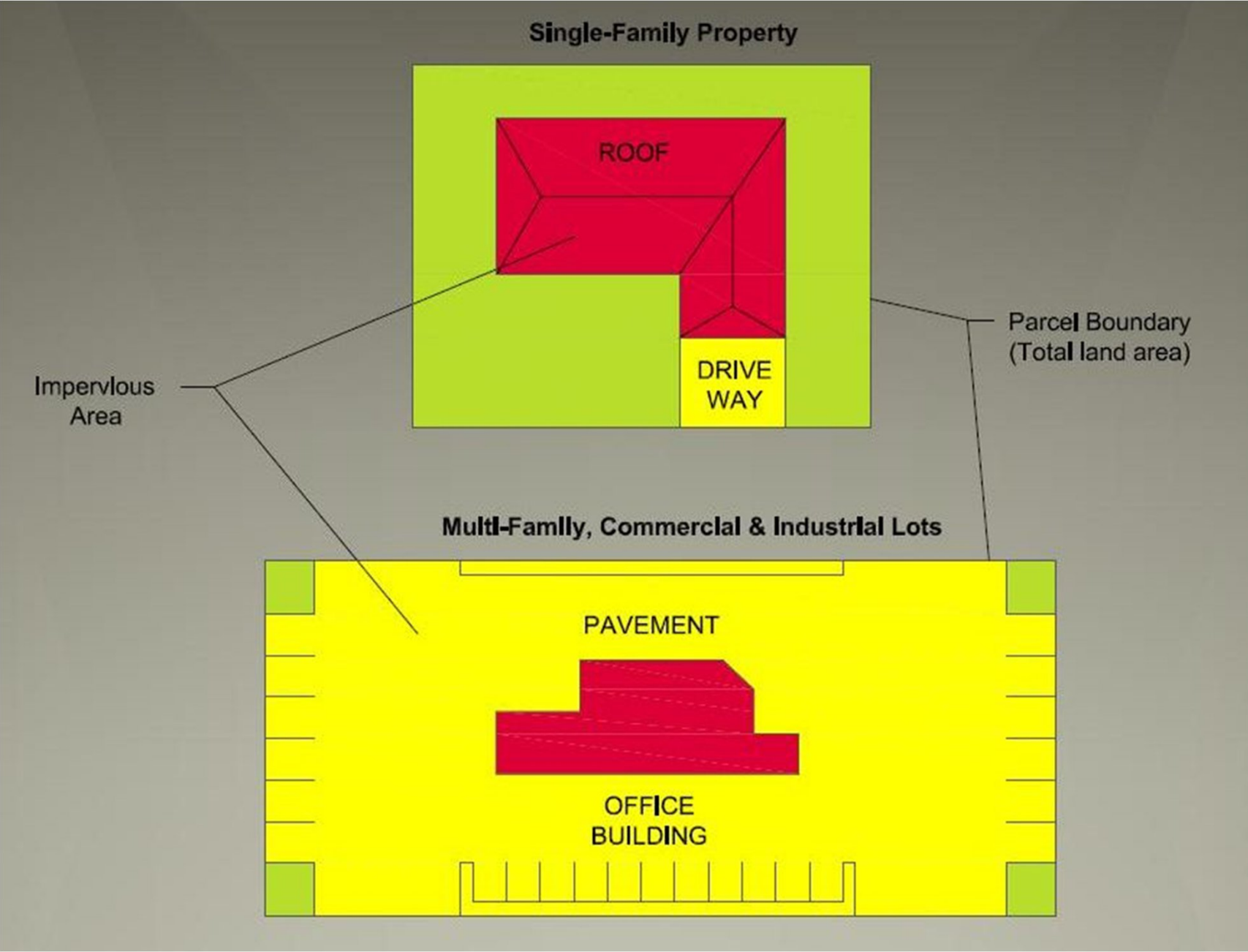
- **Stormwater Utility established in 1999**
 - Fund capital improvements
 - Fund operations and maintenance
- **Impervious Cover determined by parcel**
 - Equivalent Residential Unit (ERU) set to = 2,250 SF
- **Current Rate structure**
 - Residential rate based on lot size
 - Small Lot (0 to 6,000 sq. ft.)
 - Medium Lot (6,000 to 12,000 sq. ft.)
 - Large Lot (greater than 12,000 sq. ft.)
 - Commercial rate based on ERU's (impervious cover/2,250 SF)
 - Multi-Family rate based on ERU and lot size
- **Update needed to reflect priority of stormwater management**

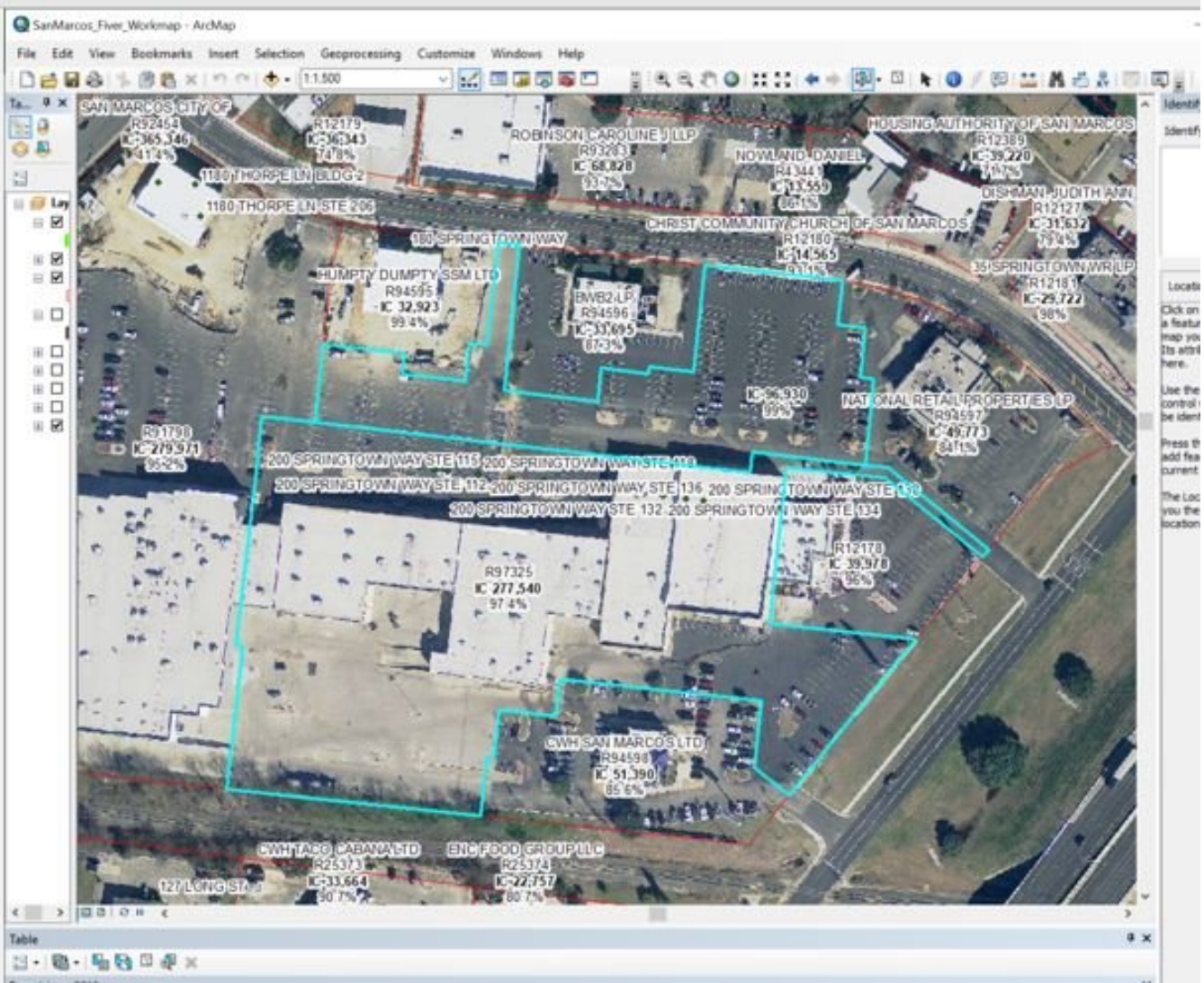
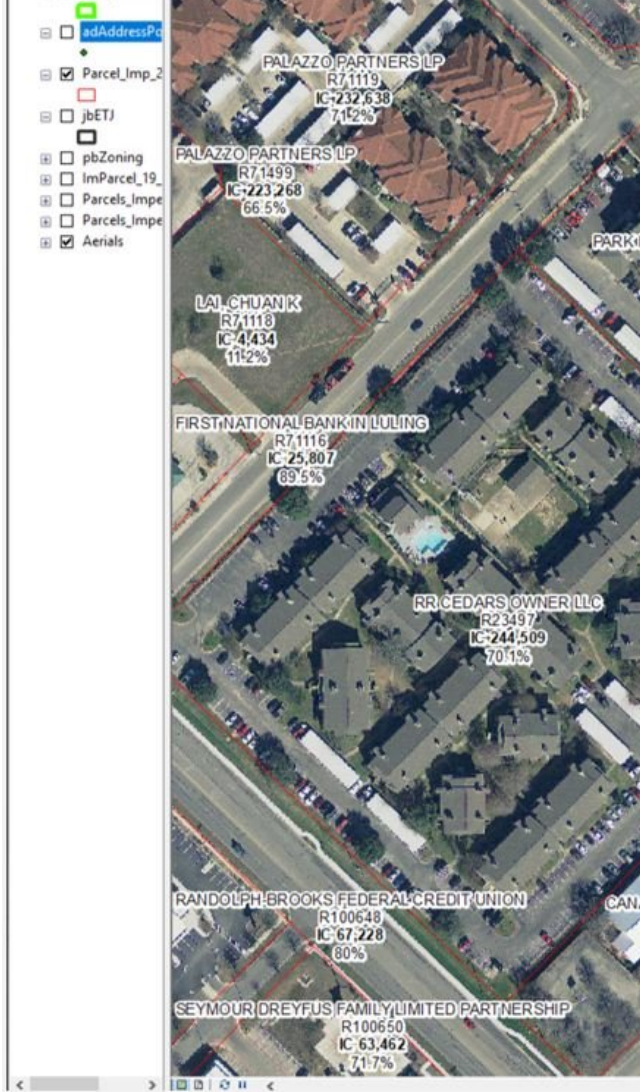
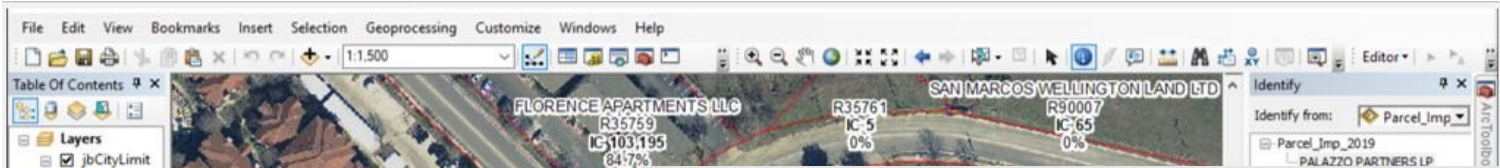
Completed

- **Calculated impervious cover (IC) by parcel**
 - 2017 0.5" 4-band aerial imagery to determine IC in ETJ
 - Impervious cover by 2019 HCAD parcel boundaries
- **Parcel impervious cover matched to billing database**
 - Billing system based upon address not parcel
 - Billing data reviewed (IC, rate class, active account)
- **Rate structure review**
 - Updated Equivalent Residential Unit impervious cover
 - Residential impervious cover frequency distribution
 - Impervious cover most equitable and proportional method for fees

Key Findings

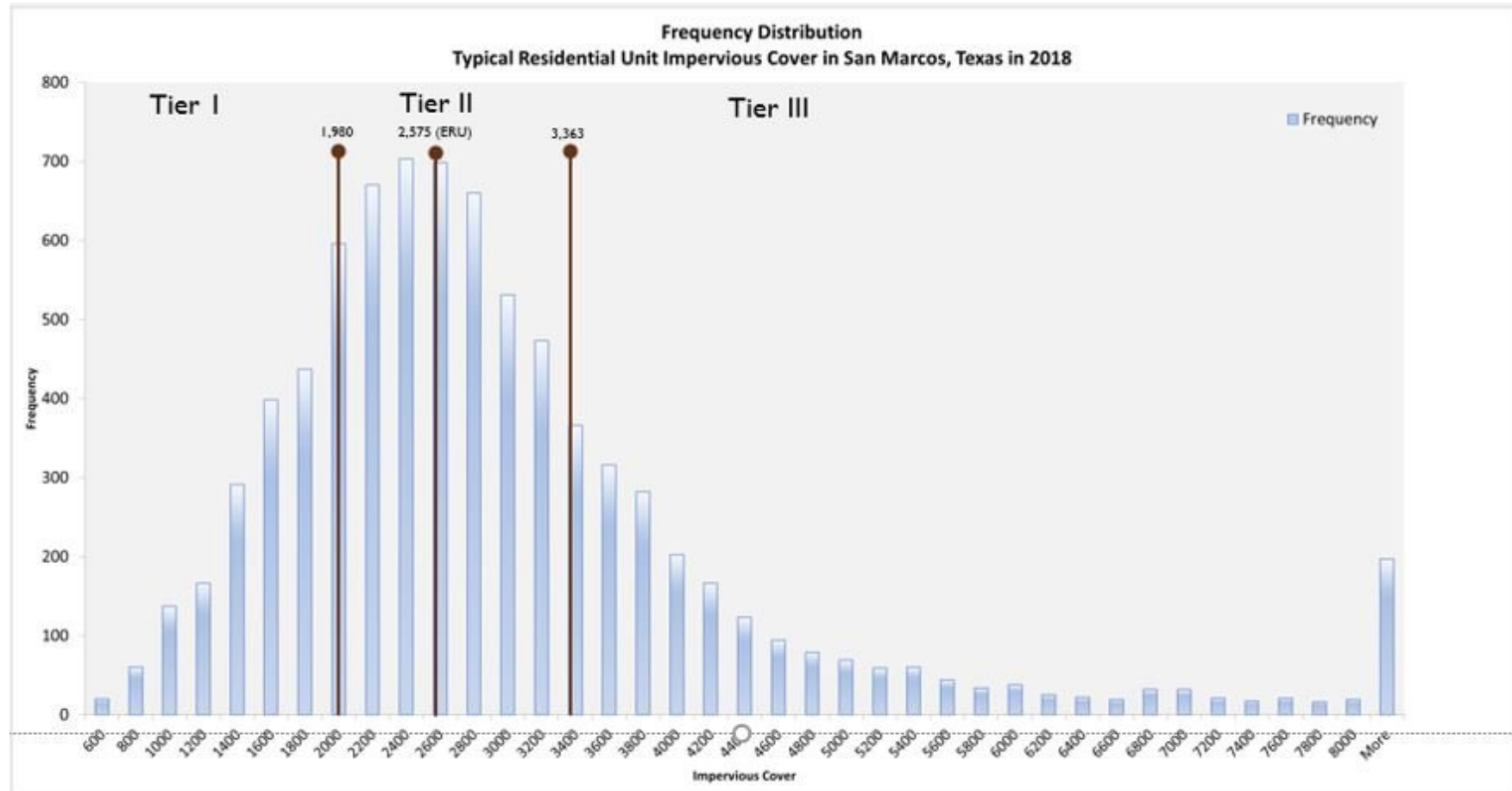
- Average Residential impervious cover has increased.
- Billing data matching identified over and under billings in the system.
 - Allocation of impervious cover in system
 - Rate class
 - Inactive accounts for water, wastewater & electric utilities but impervious cover remains
- Bring utility up to current best practices.
- Maintenance critical for both physical assets and data!
- Finalizing financial model for budget workshops.





Proposed Changes

- **Change how residential rates are calculated**
 - Impervious area instead of lot size
 - Three tiers



RATE STRUCTURE COMPARISON

Existing

Drainage Rates

Drainage Rates

| Description | October 1, 2017 Rate | October 1, 2018 Rate |
|--|----------------------|----------------------|
| Residential Small Lot (0 to 6,000 Square Feet) | 6.58 | 7.57 |
| Residential Medium Lot (6,001 to 12,000 Square Feet) | 10.52 | 12.10 |
| Residential Large Lot (Greater than 12,000 Square Feet) | 12.05 | 13.86 |
| Commercial | * | *** |
| Multi-Family | ** | ** |

* \$10.52 per equivalent residential (ERU) per month - October 1, 2017 rate

*** \$12.10 per equivalent residential (ERU) per month - **October 1, 2018 rate**

One ERU for commercial land is determined to be 2,250 square feet of impervious cover.

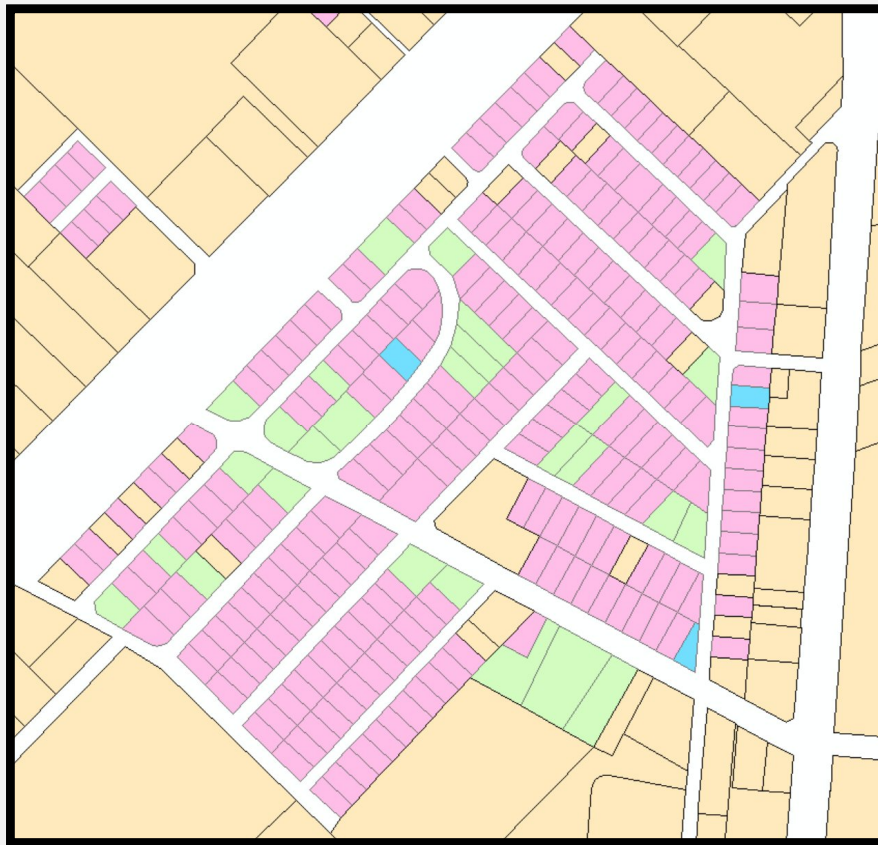
** Number of units times residential rate (determined by lot total SF / # units)

Proposed (ERU 2,575)

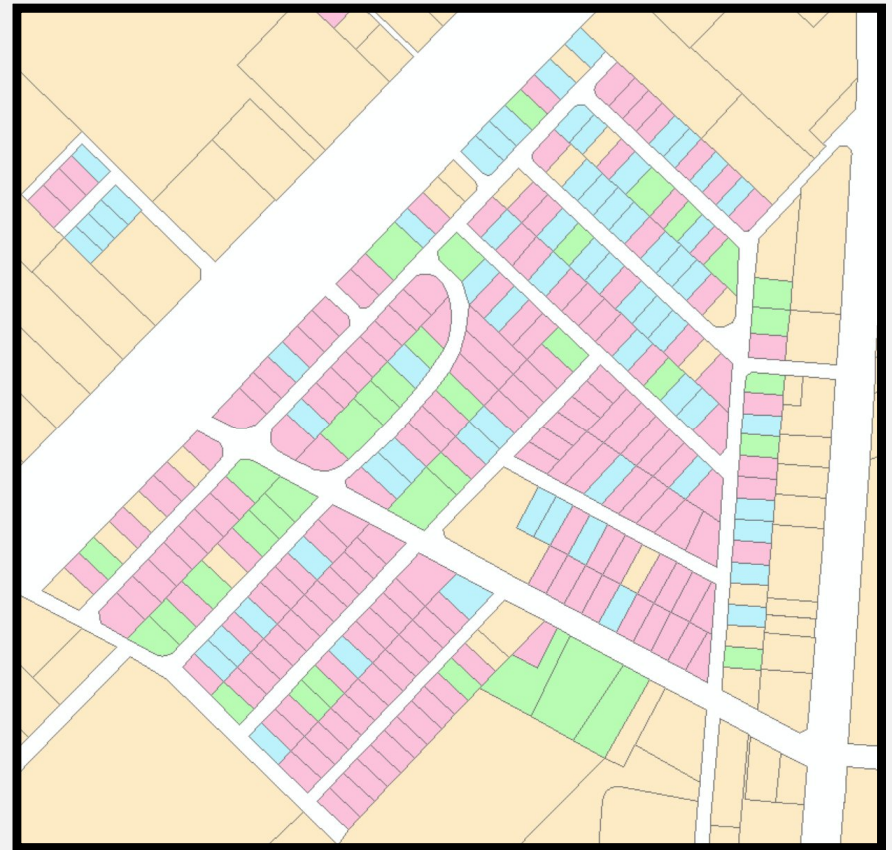
| Class Code | Description | IC Range | Rate |
|------------|---|---------------------------------|---------|
| R1 | Small Residential | 0-1,980 | \$7.43 |
| R2 | Typical Residential | 1,980-3,363 | \$12.10 |
| R3 | Large Residential | 3,363+ | \$17.68 |
| NR | Commercial, Retail, Government, Multi-family, Religious, non-profit, etc. | Impervious Area / ERU * Rate | \$12.10 |

RESIDENTIAL AREAS COMPARISON SUNSET ACRES

Existing Rate
Structure – Lot Size



Proposed Rate
Structure – Imp. Cover



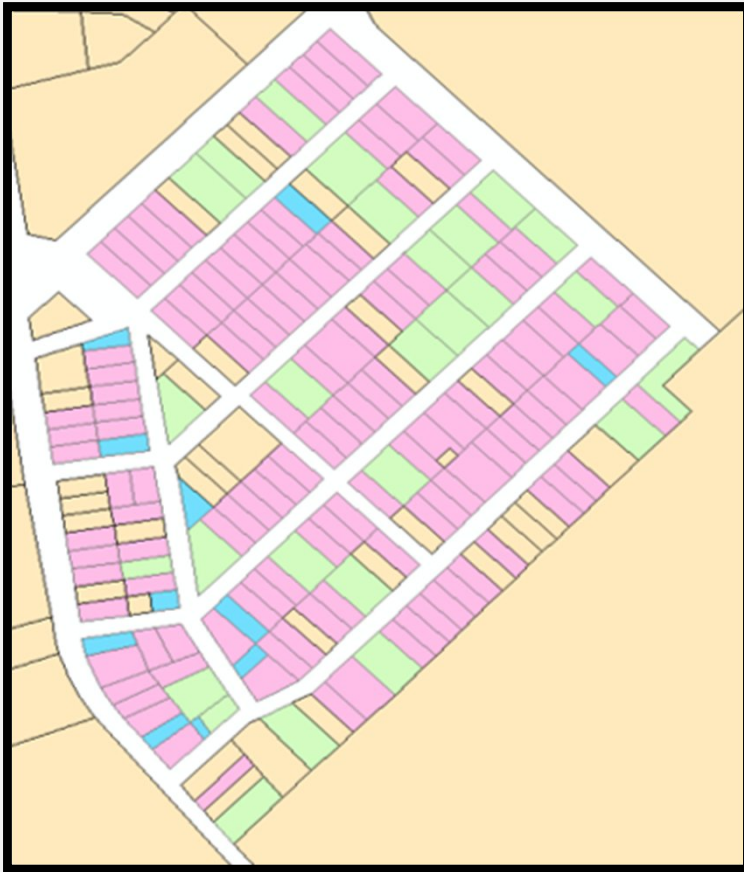
• Tier 1 – Blue

• Tier 2 – Pink/Purple

• Tier 3 - Green

RESIDENTIAL AREAS COMPARISON WALLACE ADDITION

Existing Rate
Structure – Lot Size



Proposed Rate
Structure – Imp. Cover



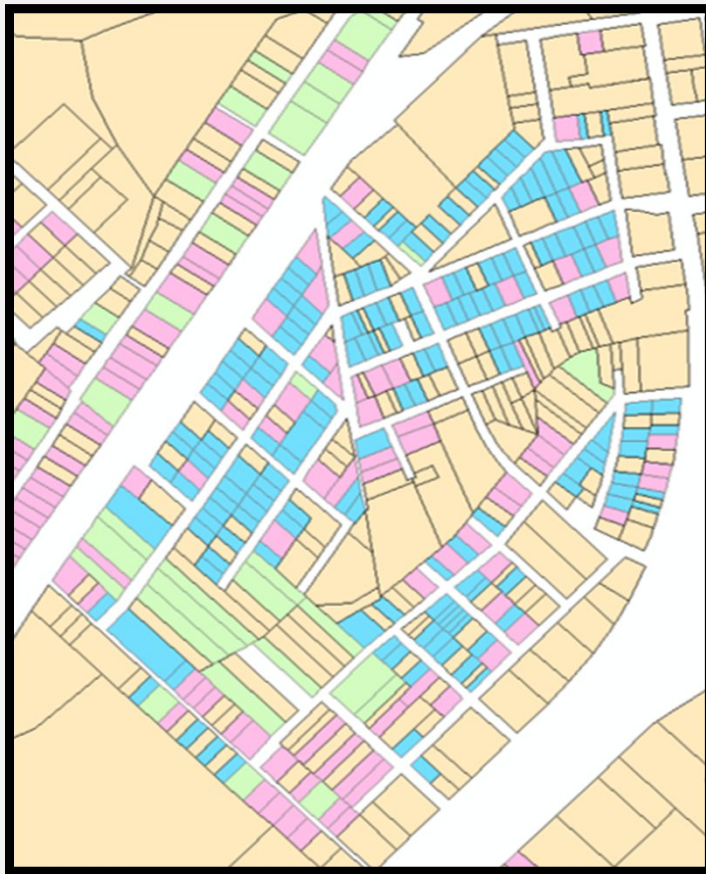
- Tier 1 – Blue

- Tier 2 – Pink/Purple

- Tier 3 - Green

RESIDENTIAL AREAS COMPARISON VICTORY GARDENS

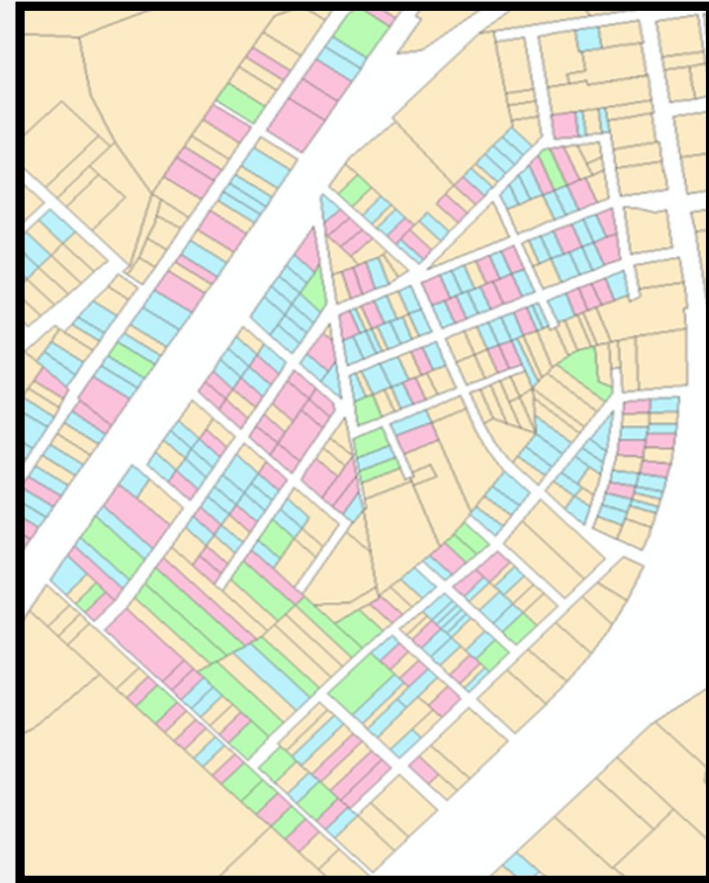
Existing Rate
Structure – Lot Size



- Tier 1 – Blue

- Tier 2 – Pink/Purple

Proposed Rate
Structure – Imp. Cover



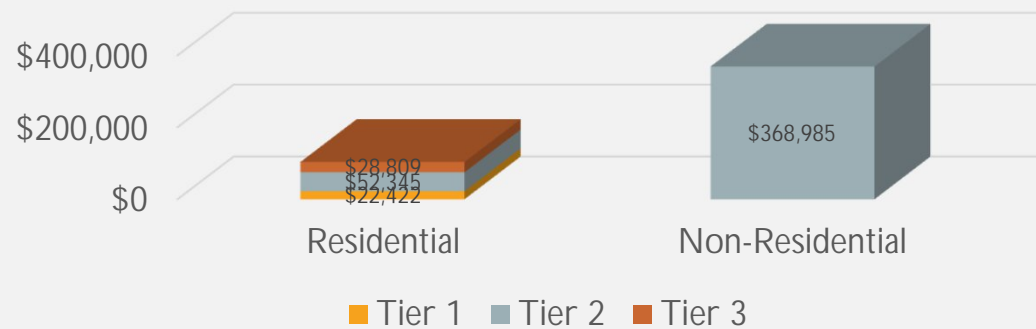
- Tier 3 - Green

Proposed Changes

- **All Other Development in Non-Residential Rate**
 - Commercial, Retail, Government, Multi-family, Religious, Non-profit, etc.
 - Rate based on Typical Residential – 2,575 s.f. of impervious cover
 - Charge = (Impervious Cover) / 2575 x Rate
- **Stormwater Fee assessed to property owner instead of utility customer.**
 - Account always remains active
 - May require transition time to implement in rental properties

DRAINAGE UTILITY REVENUE BY CUSTOMER CLASS

Existing Rate Structure, Existing Parcel Area,
Impervious Data

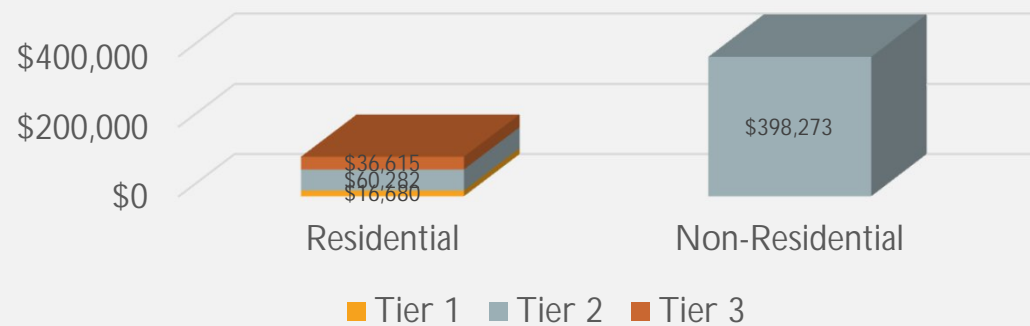


Monthly Revenue:
\$472,561
Annual Revenue:
\$5,670,732

*Based on total charges for active drainage accounts as of 04/09/2019

DRAINAGE UTILITY REVENUE BY CUSTOMER CLASS

New Rate Structure, New Parcel Area,
Impervious Data



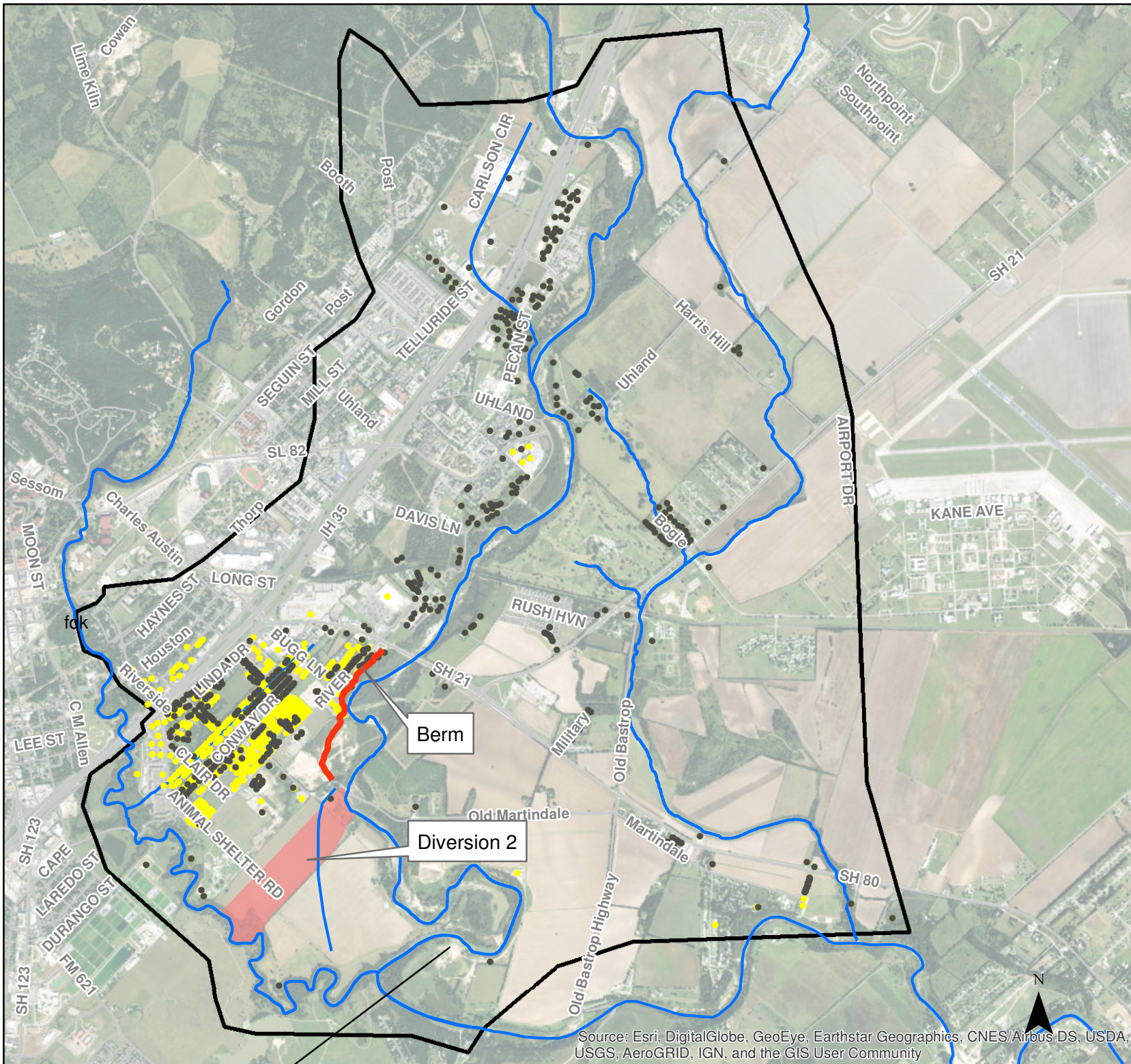
Monthly Revenue:
\$511,850
Annual Revenue:
\$6,142,200

8.3% increase from
existing

*Based on total charges for active drainage accounts as of 04/09/2019

Next Steps

- **Additional discussion and direction in Budget Workshops**
- **Rate model results to evaluate**
 - Rate impacts of CIP debt
 - Adequate operations funding for maintenance
- **Develop Implementation Schedule**
 - Outreach
 - Billing system changes
 - Ordinance update



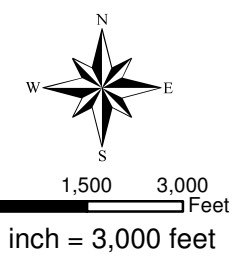
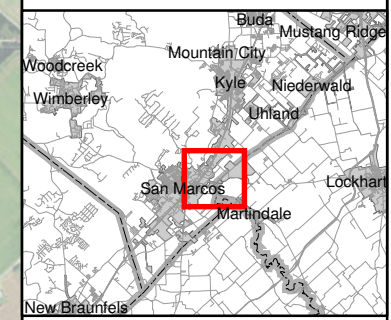
US Army Corps
of Engineers®

Alternative 6 Results Diversion 2 and Berm

Legend

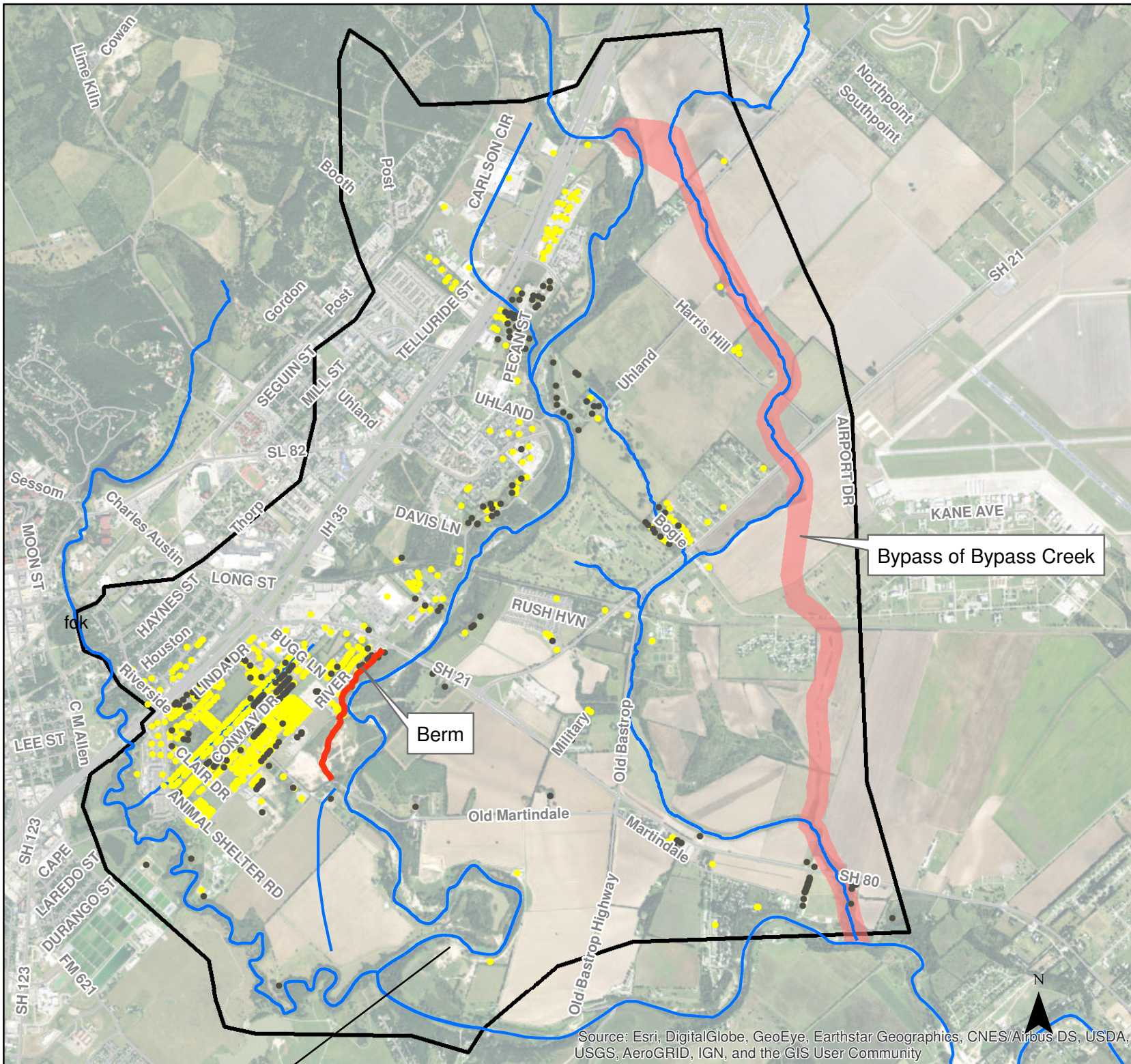
- Stream Centerline
- 2D Model Extents
- Potential Berm
- 420 Structures Protected
- 570 Structures Remaining at Risk

Note: The number of at risk structures is defined by subtracting the estimated finished floor elevation from the computed 1% ACE water surface elevation. When the 1% ACE water surface elevation exceeds the finish floor elevation, interior or structural flooding is likely to occur. These graphics represent the 1% ACE pre- and post-project simulation results.



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

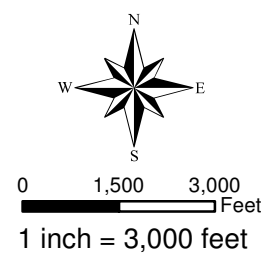
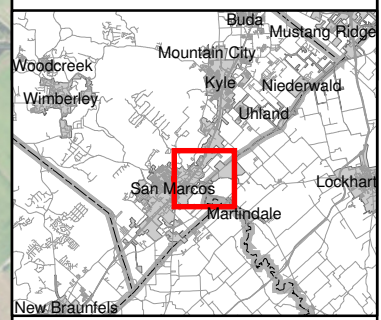




Alternative 2D Results Bypass of Bypass Creek and Berm

- Legend**
- Stream Centerline
 - 2D Model Extents
 - Potential Berm
 - 260 Structures Remaining at Risk
 - 730 Structures Protected

Note: The number of at risk structures is defined by subtracting the estimated finished floor elevation from the computed 1% ACE water surface elevation. When the 1% ACE water surface elevation exceeds the finish floor elevation, interior or structural flooding is likely to occur. These graphics represent the 1% ACE pre- and post-project simulation results.



San Marcos/Hays & Caldwell Counties – NRCS Watershed Plan for Blanco River

Summary and Background



Devastating flood events in May and October of 2015 resulting in loss of life and property has brought focus on mitigation of future events. In 1978 the Upper San Marcos Watershed Plan was approved covering portions of Hays and Comal Counties. The result of the plan was the construction of 5 flood control structures located on Sink and Purgatory Creeks. These structures have played a significant role in the protection of San Marcos.

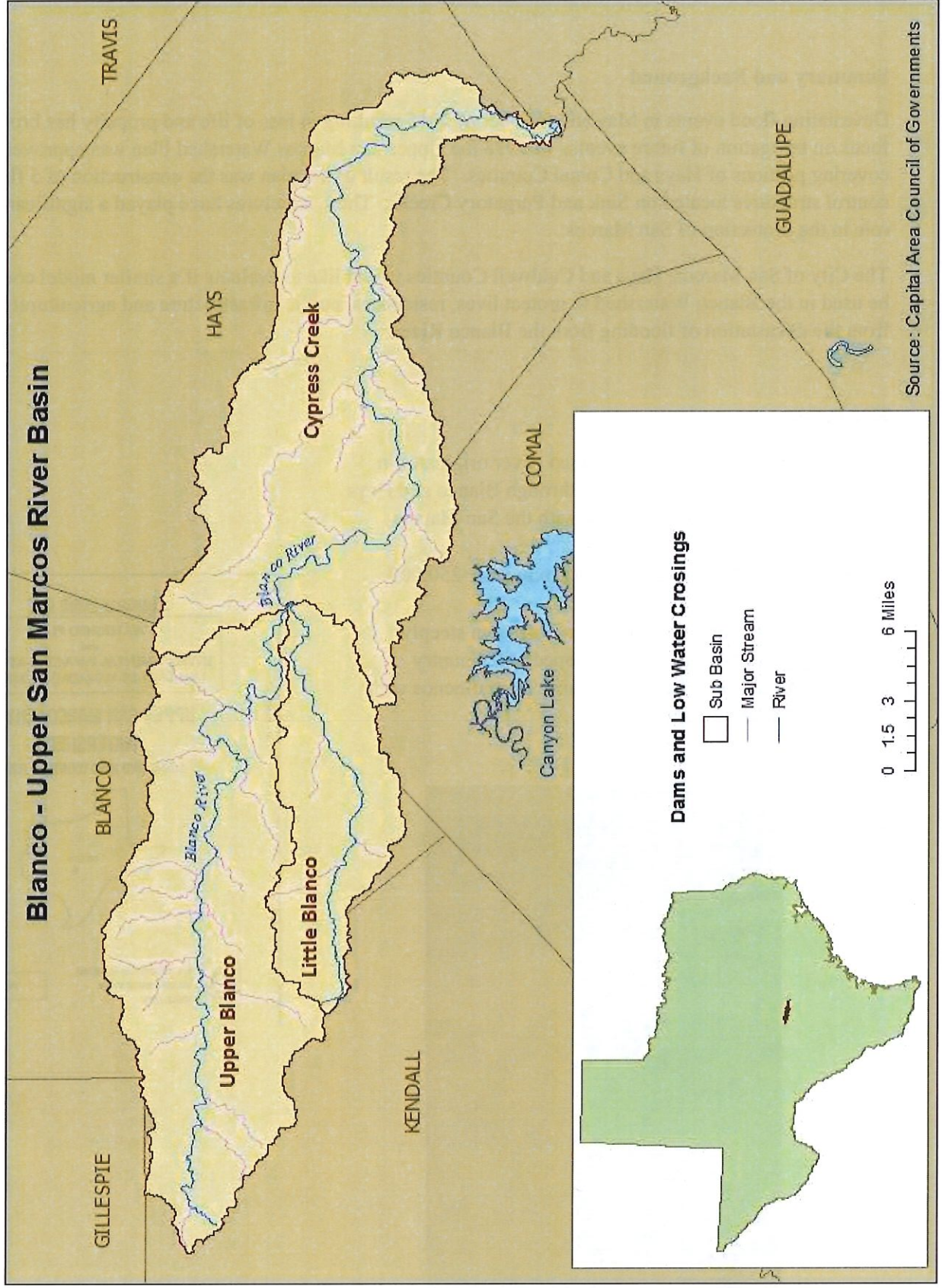
The City of San Marcos, Hays and Caldwell Counties would like to evaluate if a similar model could be used in the Blanco Watershed to protect lives, residences, public infrastructure and agricultural lands from the devastation of flooding from the Blanco River.

Key Facts.

- The headwaters of the Blanco River originates in Kendall County and flows through Blanco and Hays Counties to its confluence with the San Marcos River.
- It has a drainage area of approximately 250,000 acres.
- Primary damages occur as runoff from steeply sloped and largely undeveloped Hill Country terrain meets Blackland Prairie at confluence with San Marcos River.



| | |
|---|----------|
| MANUALLY SIGNED COPY | |
| WATERSHED PLAN and ENVIRONMENTAL IMPACT STATEMENT USDA-SCS-EIS-WS-(ADM)-78-2-(F)-(TX) | |
| UPPER SAN MARCOS RIVER WATERSHED COMAL AND HAYS COUNTIES, TEXAS | |
|  | |
|  U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE TEMPLE, TEXAS | JUL 1978 |



NRCS Meeting Notes April 30, 2019

Kevin Farmer, Deputy Director of the Conservation Engineering Division
Natural Resources Conservation Service
U.S. Department of Agriculture
1400 Independence Ave., SW
South Building
Washington, DC 20250

- Funding call issued to states May 15th (Salvatore Salinas) with 60 days for states to submit project requests (July 15th)
- Projects developed by state office and submitted to DC for evaluation
- Decision of selected projects in mid-August with funding notice to state in September
- 3 pools of funding – Backlog projects, New and Remedial
- \$150 million this year – believes this will continue annually. Additional \$50M tied to Farm Bill (2017 & 2018 \$150M each)
- Funding participation requirement depends on phase
- 100% funding for planning and design
- On-line document submitted by state (sponsors assist state with completion)
- Favorable consideration is given to projects/sponsors with:
 - Previous watershed project level work within last 5-10 yrs
 - Demonstrate results
 - Solve regional issue
 - Public participation
 - Protection of threatened/endangered species
 - Protects limited resource/socially disadvantaged
 - Must show 20% agriculture benefit
 - Want projects that show flexibility/habitat enhancement
 - Recreational/education benefit (trails in lieu of recreational pool)
- Preference is for Watershed Plans to be developed in-house but can use consultants.
- Plan can take 12-18 months to develop and includes EA/EIS
- Land rights and permitting are sponsor costs (need to check on how that works if plan includes EA/EIS)
- Need to have written agreement of sponsors prior to completion of plan
- All sponsors (affected land area) must be at the table. Because Blanco Watershed encompasses large area think about getting TCEQ, SCS or Soil & Water Conservation District to act as overall sponsor to make it easier.
- Need to have discussion with Sal's office. City has had conversation with Mark Northcut.
- Construction costs are 65/35

USDA Watershed Protection and Flood Prevention Program

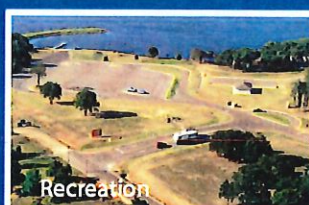
The Watershed Protection and Flood Prevention Act of 1954 (Public Law 83-566) has been used as an effective tool to conserve natural resources by thousands of local communities for over 60 years. The watershed program is administered by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS).



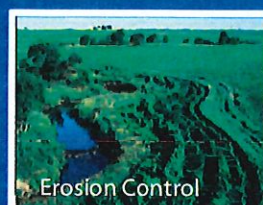
Flood Control



Water Supplies



Recreation



Erosion Control

Watershed Program

There are 2,000 watershed projects in the nation, with projects in all 50 states, Puerto Rico and the Pacific Basin. Forty-seven states have projects that include flood control dams. Watershed plans have been carried out in these projects that have included installation of thousands of conservation practices and the construction of 11,800 flood control dams that provide multiple benefits to thousands of citizens including:

- ◆ Reduced flooding
- ◆ Erosion control
- ◆ Reduced sediment in streams and rivers
- ◆ Reduced agricultural related pollutants
- ◆ Municipal and rural water supplies
- ◆ Water quality protection
- ◆ Recreational areas
- ◆ Wildlife habitat
- ◆ Groundwater recharge

Watershed Plans

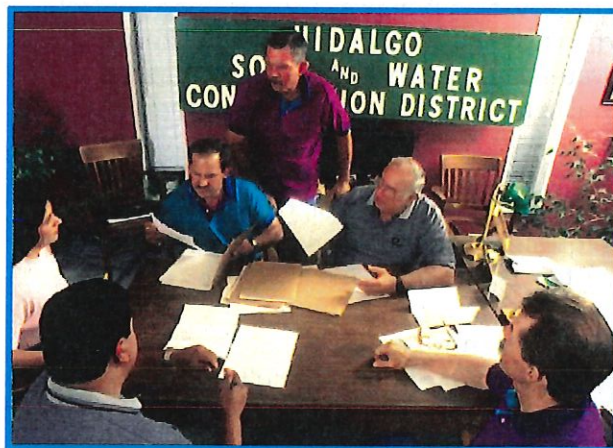
A watershed plan is developed for each project that includes environmental impacts, costs and benefits, planned conservation practices and the responsibilities of involved parties. A variety of agencies and organizations can assist local project sponsors in plan development.

Local Leadership

Watershed projects are planned and carried out jointly by local, state, and federal agencies with support of land owners and citizens in the watersheds.

Local units of government, usually conservation districts, cities or tribes, identify resource problems to be addressed and practices to be installed.

These local project sponsors carry out major portions of a watershed plan, such as obtaining easements, rights of ways and permits, and providing cost-share funding.



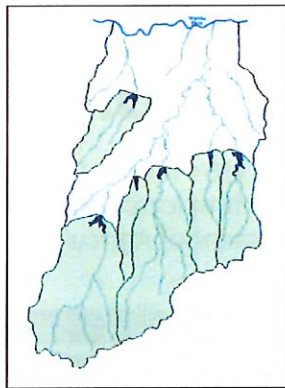
Local units of government such as conservation districts and cities serve as project sponsors for watershed projects.

Project sponsors obtain public comments and input throughout the planning process. NRCS provides technical and financial assistance to local project sponsors.

NRCS assistance is available for engineering and construction costs of flood control measures, conservation practices for water quality, erosion and sediment control and for municipal and industrial water supplies and recreation facilities.

Everyone Lives in a Watershed

Everyone lives in a watershed. Watersheds are the area of land drained by a particular surface stream system and that drains into a larger stream.



Watershed projects are developed for watersheds 250,000 acres or smaller. Some have flood control dams built on tributaries to larger streams or rivers. Other projects may only have land and water conservation practices.

A series of flood control dams are usually constructed in a watershed that store water during heavy rainfall events and release it through a pipe through the dam over a period of days or weeks. This reduces the amount of water that flows into larger streams or rivers downstream and reduces flooding.

Conservation Measures

A project can consist of a combination of conservation practices such as flood control dams and conservation practices like terraces, waterways, grade stabilization structures, animal waste management, and wetlands restoration.

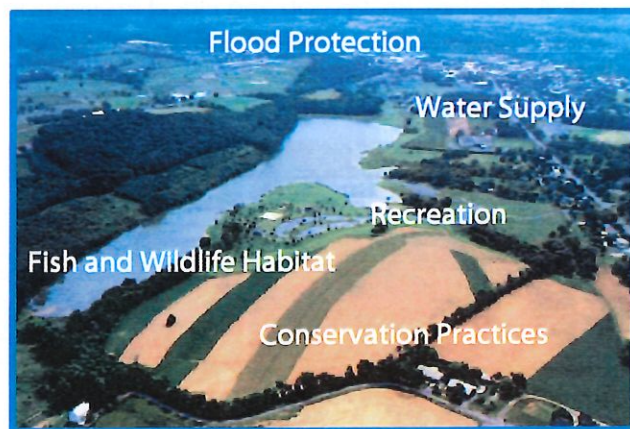
Other measures can also be used such as zoning, enforcing building codes, land acquisition, and emergency flood warning systems.

Water Management

Management of both agricultural and nonagricultural water supplies can be a significant component of watershed projects.

Measures to increase or conserve present and future water supplies in rural areas, improve water quality impacted by pollutants, and ground water recharge can be part of a watershed plan.

Management for nonagricultural uses such as municipal and industrial uses, recreational uses and improved fish and wildlife habitat represent other opportunities found in watershed projects



Regional Conservation Partnership Program (RCCP)

The Regional Conservation Partnership Program (RCPP) is a new, comprehensive and flexible program that mobilizes partnerships to multiply conservation investments and reach common conservation goals on a regional or watershed scale.

The program is available in critical conservation areas and assistance is available using the Watershed Program and other USDA program authorities.

RCPP applicants (local organizations) may request to use the Watershed Program authority in designated Critical Conservation Areas (CCAs).

For More Information

For more information about the Watershed Program contact any local NRCS field office or visit the NRCS web page (www.nrcs.usda.gov), click on Programs, then Landscape Planning, and then on Watershed Protection and Flood Prevention.

